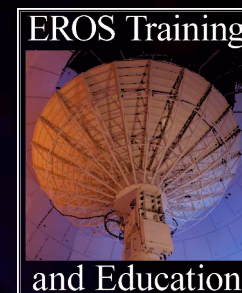




What Is TerraLook?

An Introduction to TerraLook Images and Collections

U.S. Department of the Interior
U.S. Geological Survey



Learning Objectives

- After completing this module the student should be able to
 - Explain how a TerraLook Collection can be useful for natural resource management
 - Understand the kinds of satellite images in the TerraLook Collection
 - Display TerraLook Images in commonly available software
 - Obtain information about the images from the TerraLook shapefiles
 - Use the TerraLook Viewer to display an image

Overview

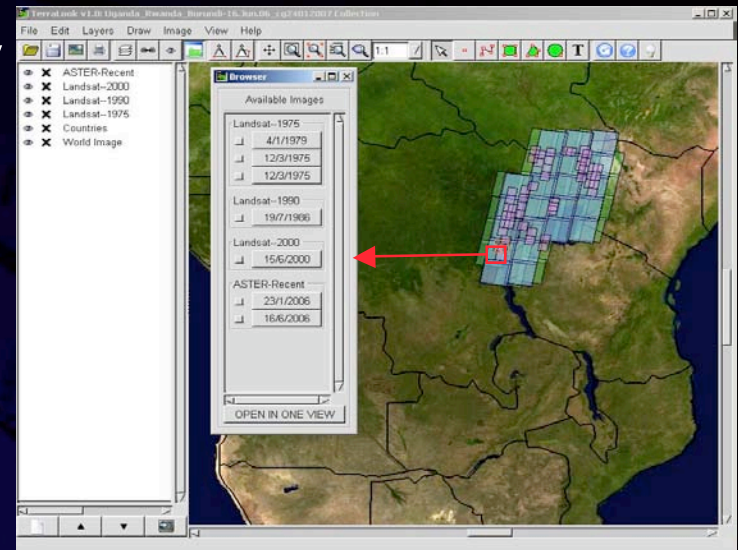
- Landsat and other satellite sensors have been collecting images of the Earth from space for more than 30 years.
- The use of satellite images is increasingly important to users beyond the scientific and land management communities.
- Satellite images are of use to a wide variety of disciplines including conservation, development planning, education, urban studies, and disaster planning and response.

TerraLook is:

- **Time-series collections of satellite images designed for visual interpretation and display**
- **A viewer/toolkit**
- **Free**

Why TerraLook?

- Existing satellite image products can be complicated and difficult to use.
 - They may require specialized software.
 - They may be expensive to acquire.
- TerraLook is a user-friendly way to access satellite images and use them for interpretation.



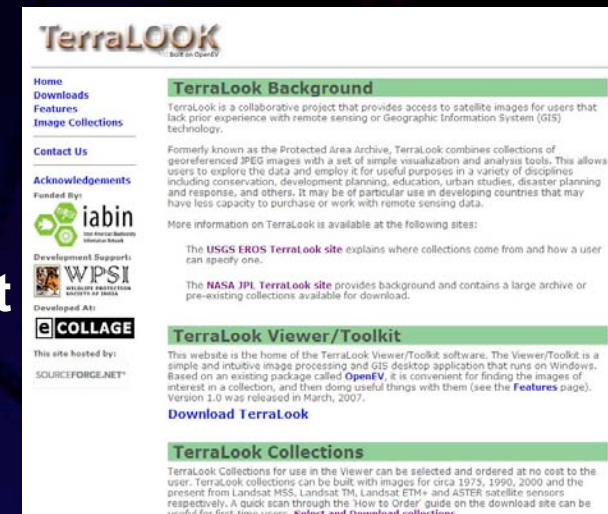
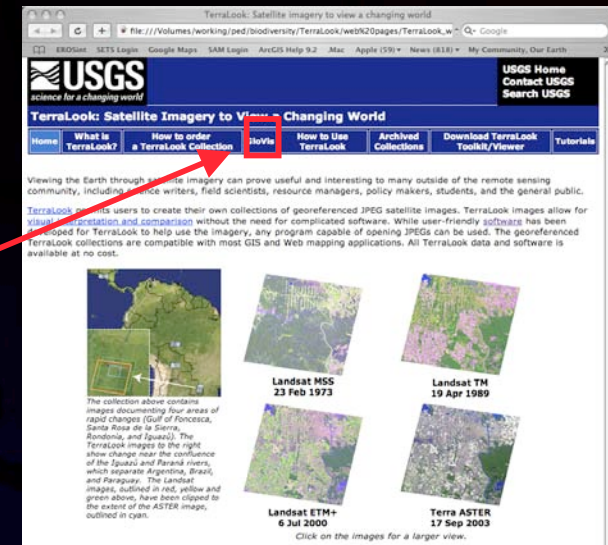
What is TerraLook?

■ Image Collections

- Collections of satellite images from circa 1975, 1990, 2000, and the present
- Can select and order (no cost) images using GloVis
- <http://terralook.cr.usgs.gov/>

■ Software

- Viewer/Toolkit
- Designed to understand the organization of the TerraLook product
- Open Source
- <http://terralook.sourceforge.net/>



History of TerraLook

- NASA Jet Propulsion Laboratory's Protected Area Archive Project
- Previously known as the Protected Area Archive (PAA)
- TerraLook was originally developed for the conservation and emergency response communities.
- Derived from ASTER and Landsat data
- <http://asterweb.jpl.nasa.gov/terralook>



ASTER and Landsat

- **ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer)**

- Area coverage of 60 x 60 km
- Joint project between the US and Japan
- <http://asterweb.jpl.nasa.gov/>



- **Landsat**

- Area coverage of 180 x 180 km
- NASA and USGS project
- Landsat acquisitions follow a predetermined path/row system
- <http://landsat.usgs.gov/>



What is a TerraLook Collection ?

- Can be
 - Thematic (cities, parks, wetlands)
 - Regional (national, protected area, or other locale)
- Preselected Landsat from Tri-decadal Global Orthorectified Landsat datasets
- Any image from the ASTER archive
- Vector shapefiles that contain information describing the images
- Metadata files that describe the collections and the images

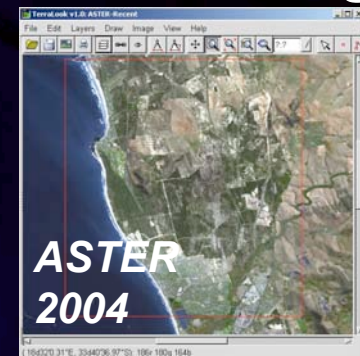
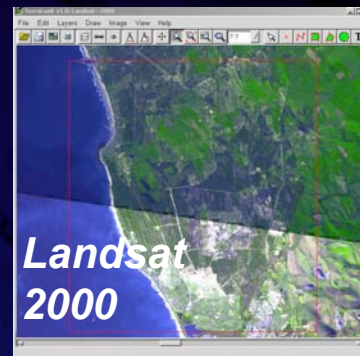
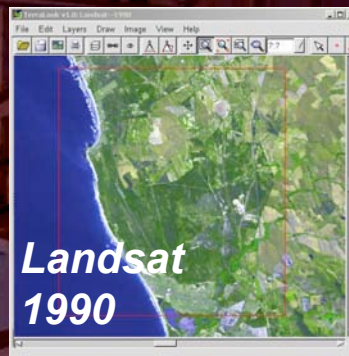
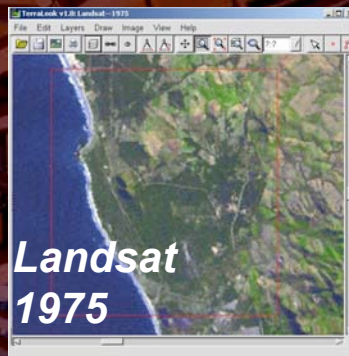


Image Collection from a Study Area near Cape Town, South Africa

What is a TerraLook Image ?

- Simulated natural-color georeferenced JPEG images
- The TerraLook colors are derived from the red, green, and Near Infrared bands.
 - Vegetation is green.
 - Dead vegetation, urban areas, and bare soil may have a purple tinge.
 - Water is blue.



Landsat 1990



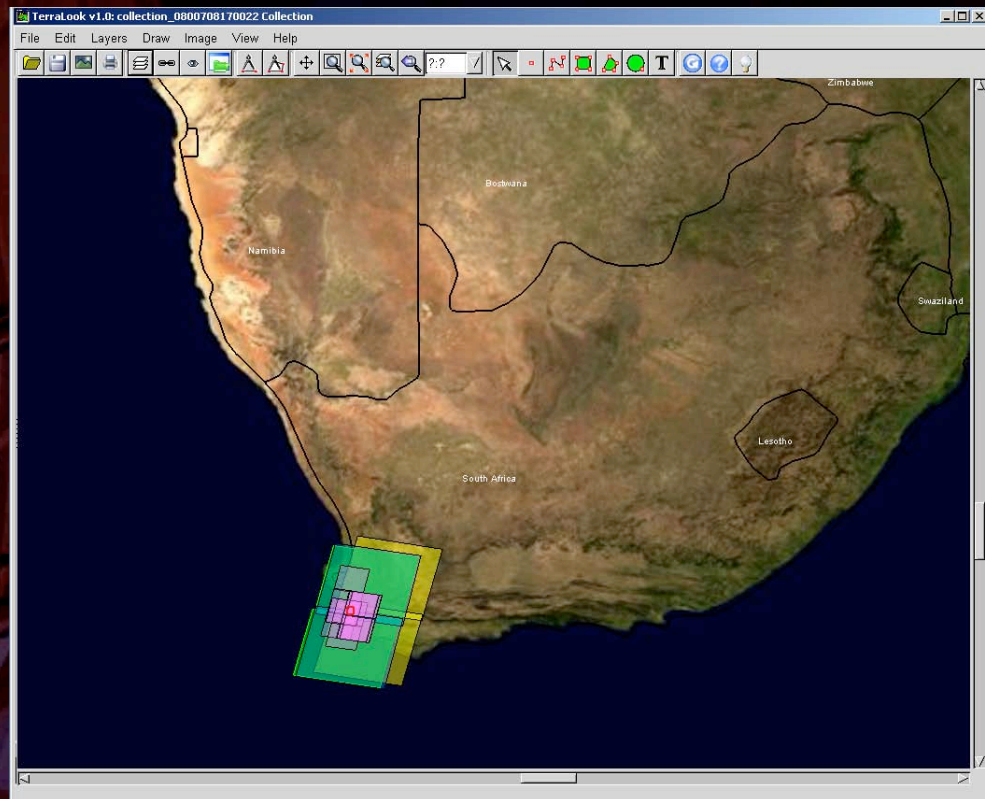
Aster – Recent (2004)

What are the Shapefiles?

- Vector data show the locations of the images and contain information describing the images.

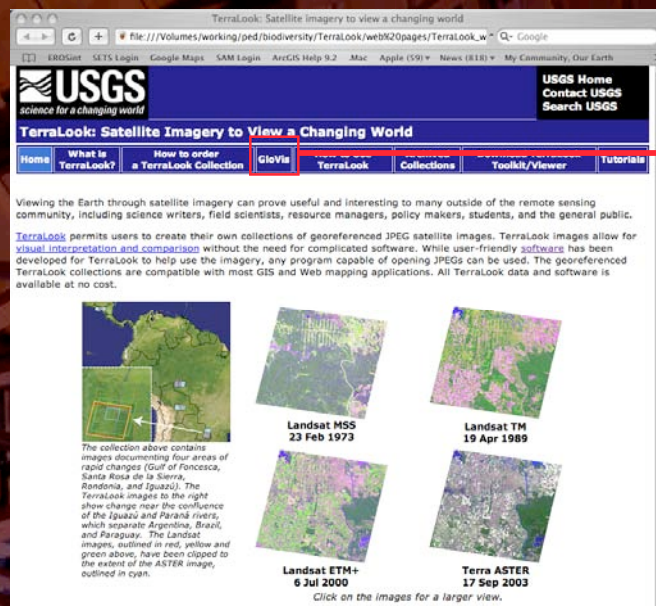
- **Example:**

- Red box – Study area in Cape Town, South Africa
- Purple boxes – ASTER images
- Blue boxes – Landsat images (2000)
- Green boxes – Landsat images (1990)
- Yellow boxes – Landsat images (1975)

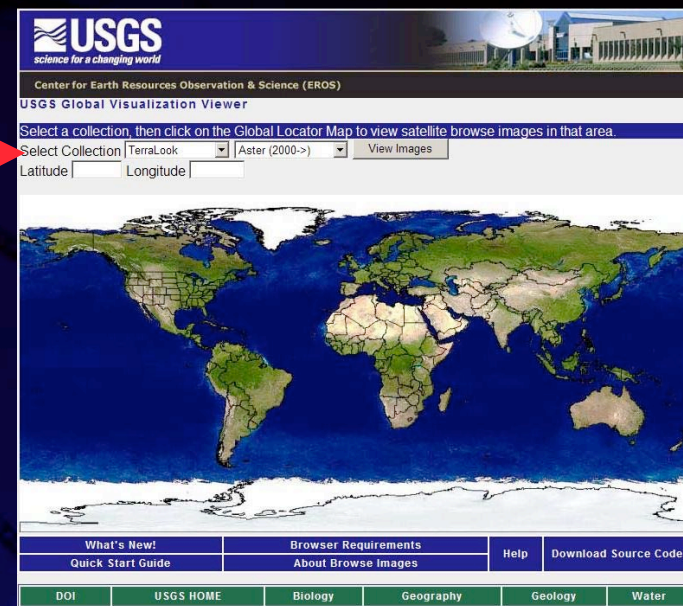


How to order

- Go to TerraLook at <http://terralook.cr.usgs.gov>.
- Go to GloVis at <http://glovis.usgs.gov>.
- Available User Guide (“How to order a TerraLook Collection?” section)



TerraLook Web site

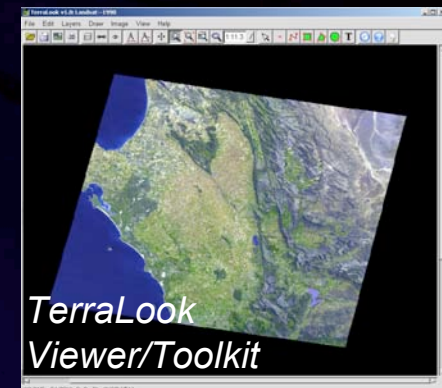
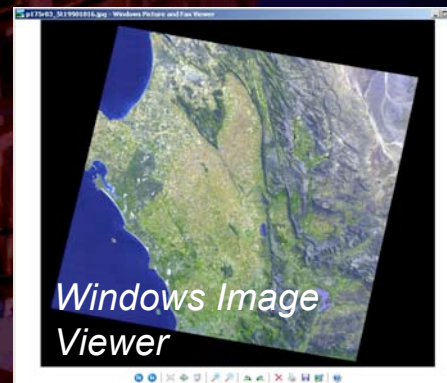
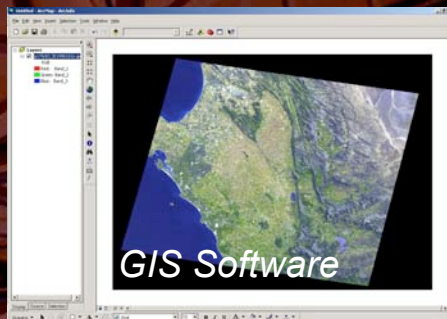
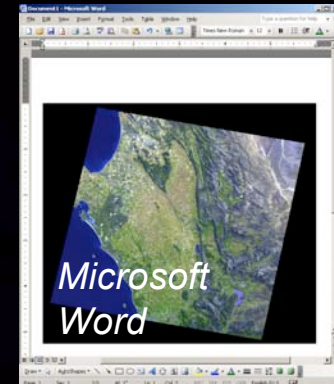
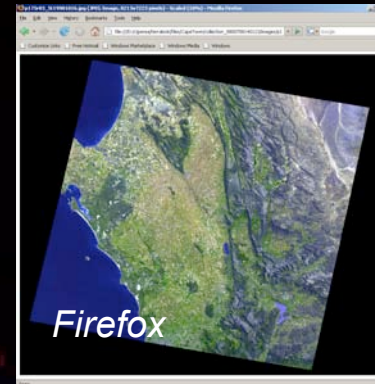


GloVis Viewer



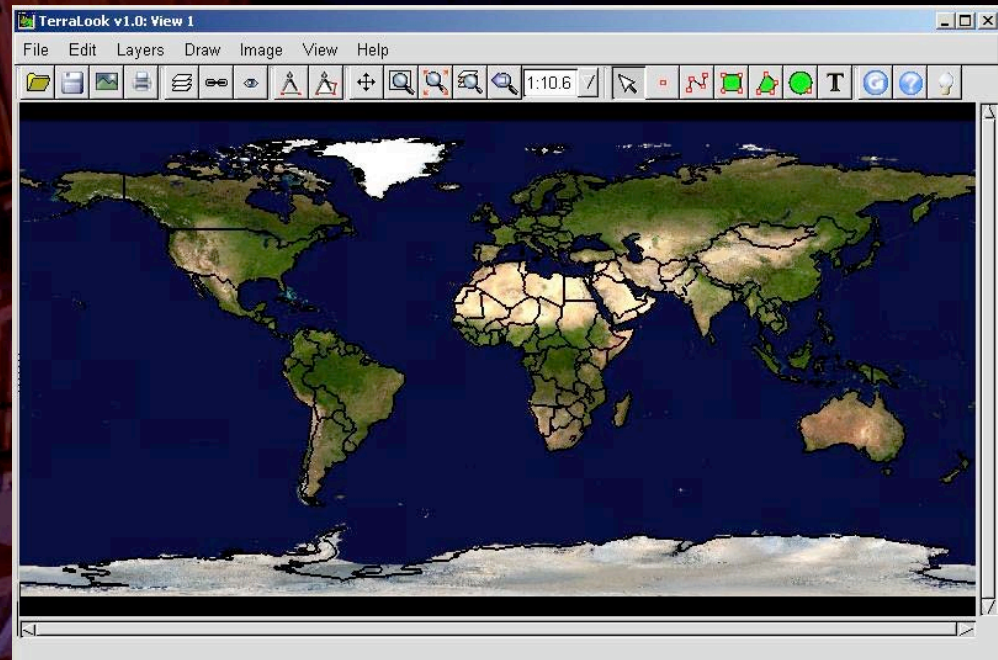
Software needed to use TerraLook

- Any software that can read JPG images
- GIS software
- TerraLook Viewer/Toolkit



TerraLook Software

- Simple and intuitive application
- Easy-to-use viewer and toolkit
- Bilingual (English or Spanish)
- Open source

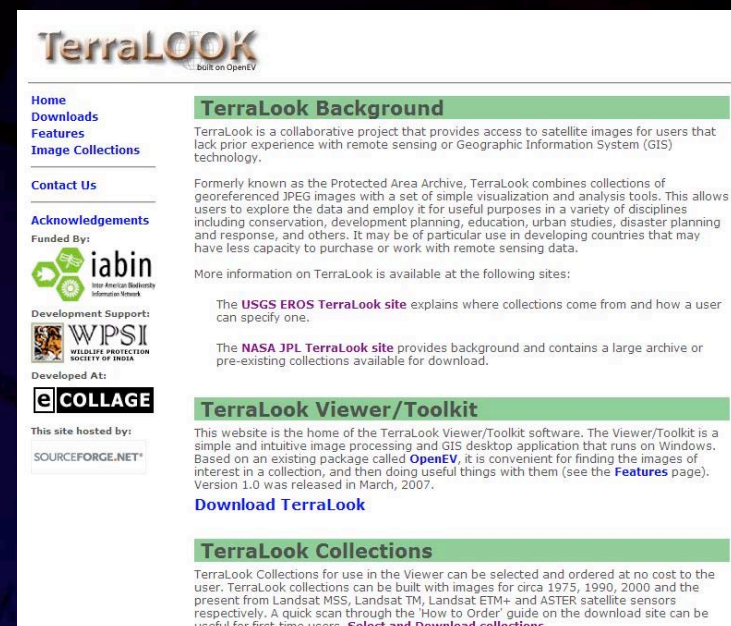


With the TerraLook Software you can:

- **Look at environmental change (display and compare images)**
- **Look at the state of the environment**
- **Analyze data and manage project information by**
 - **Integrating existing vector data**
 - **Creating new interpreted vector data (shapefiles)**
 - **Managing layers**
 - **Annotation**

How to acquire the TerraLook viewer/toolkit

- Go to <http://terralook.sourceforge.net/>.
- System requirements
 - Windows XP or 2000
 - 300 Mhz Pentium or faster
 - At least 512 Memory
- Free download
- Easy uninstalling



The screenshot shows the TerraLook website interface. At the top is the 'TerraLOOK' logo with 'built on OpenEV' underneath. A left sidebar contains navigation links: Home, Downloads, Features, Image Collections, Contact Us, Acknowledgements, and a 'Funded By' section listing iabin, WPSI, and eCOLLAGE. The main content area has a 'TerraLook Background' section explaining the project's collaborative nature and listing georeferenced JPEG images. Below this, it mentions information available at the USGS EROS and NASA JPL TerraLook sites. The 'TerraLook Viewer/Toolkit' section describes the software as a simple and intuitive image processing and GIS desktop application. The 'TerraLook Collections' section explains that collections can be built with images from various satellite sensors (Landsat MSS, Landsat TM, Landsat ETM+, and ASTER) and provides a link to 'Select and Download collections'.

TerraLOOK
built on OpenEV

Home
Downloads
Features
Image Collections

Contact Us

Acknowledgements
Funded By:
iabin
WPSI
eCOLLAGE

TerraLook Background
TerraLook is a collaborative project that provides access to satellite images for users that lack prior experience with remote sensing or Geographic Information System (GIS) technology.
Formerly known as the Protected Area Archive, TerraLook combines collections of georeferenced JPEG images with a set of simple visualization and analysis tools. This allows users to explore the data and employ it for useful purposes in a variety of disciplines including conservation, development planning, education, urban studies, disaster planning and response, and others. It may be of particular use in developing countries that may have less capacity to purchase or work with remote sensing data.
More information on TerraLook is available at the following sites:
The **USGS EROS TerraLook site** explains where collections come from and how a user can specify one.
The **NASA JPL TerraLook site** provides background and contains a large archive or pre-existing collections available for download.

TerraLook Viewer/Toolkit
This website is the home of the TerraLook Viewer/Toolkit software. The Viewer/Toolkit is a simple and intuitive image processing and GIS desktop application that runs on Windows. Based on an existing package called **OpenEV**, it is convenient for finding the images of interest in a collection, and then doing useful things with them (see the **Features** page). Version 1.0 was released in March, 2007.
[Download TerraLook](#)

TerraLook Collections
TerraLook Collections for use in the Viewer can be selected and ordered at no cost to the user. TerraLook collections can be built with images for circa 1975, 1990, 2000 and the present from Landsat MSS, Landsat TM, Landsat ETM+ and ASTER satellite sensors respectively. A quick scan through the 'How to Order' guide on the download site can be useful for first-time users. [Select and Download collections](#)

Exercises

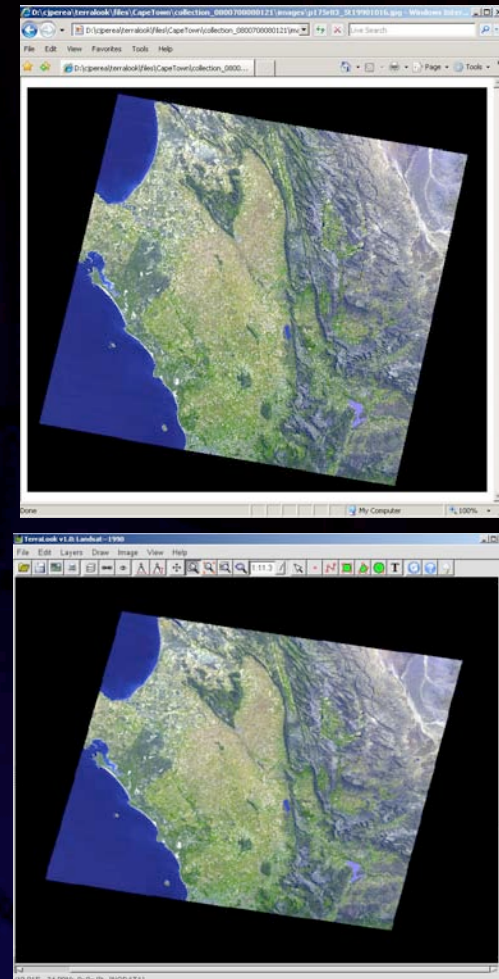
- **Install TerraLook Viewer on your desktop.
(15 minutes)**
- **Open a TerraLook Image in a Web browser
and in the TerraLook Viewer.
(15 minutes)**

Installing TerraLook

- Go to <http://terralook.sourceforge.net/> or to software folder on the CD.
- Choose installer language (English or Spanish) according to Windows system.
- Run executable file and follow the instructions.
- Open TerraLook Viewer/Toolkit.

Open a TerraLook Image

- **Web Browser**
 - Go to Internet Explorer.
 - File > Open > Browse
 - Look for JPEG TerraLook Image (*p175r83_5t19901016.jpg*).
- **TerraLook Viewer**
 - Open TerraLook.
 - File > Open > Image
 - Look for JPEG TerraLook Image (*p175r83_5t19901016.jpg*).
 - Click “Yes” to open in a new view.



TerraLook Web sites

- USGS EROS TerraLook
(terralook.cr.usgs.gov)
- NASA JPL TerraLook
(asterweb.jpl.nasa.gov/terralook)
- TerraLook software
(terralook.sourceforge.net)